

Audit

Report



19990804 016

HAZARDOUS MATERIAL MANAGEMENT FOR THE
T-45 UNDERGRADUATE JET PILOT TRAINING SYSTEM

Report Number 99-221

July 21, 1999

Office of the Inspector General
Department of Defense

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Acronyms

CHRIMP	Consolidated Hazardous Material Reutilization and Inventory Management Program
GOLD	Government-on-Line-Data
HSMS	Hazardous Substance Management System
SFFAS	Statement of Federal Financial Accounting Standards



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884

July 21, 1999

MEMORANDUM FOR ASSISTANT SECRETARY OF THE NAVY (FINANCIAL
MANAGEMENT AND COMPTROLLER)

SUBJECT: Audit Report on Hazardous Material Management for the T-45
Undergraduate Jet Pilot Training System (Report No. 99-221)

We are providing this audit report for information and use. The Joint Logistics Commanders requested an audit of hazardous material management for major Defense systems. This report is the third in a series of reports resulting from the requested audit.

We considered Navy comments on a draft of this report in preparing this final report. The comments on the draft report conformed to the requirements of DoD Directive 7650.3. Therefore, we do not require additional comments.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. John E. Meling at (703) 604-9091 (DSN 664-9091) (jmeling@dodig.osd.mil) or Mr. Jack D. Snider at (703) 604-9087 (DSN 664-9087) (jsnider@dodig.osd.mil). See Appendix D for the report distribution. The audit team members are listed inside the back cover.

David K. Steensma
Deputy Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 99-221

(Project No. 8AE-5037.02)

July 21, 1999

Hazardous Material Management for the T-45 Undergraduate Jet Pilot Training System

Executive Summary

Introduction. The T-45 Undergraduate Jet Pilot Training System (the T-45TS), an Acquisition Category IC program, is a Navy program designed to provide the necessary tools to train carrier and strike aviators for the Navy and Marine Corps. The T-45TS consists of T-45A/C aircraft with supporting ground equipment, contractor maintenance, and a pilot-training integration system that incorporates classroom academics, sophisticated flight simulators, and a training support center. The T-45TS supports a pilot training rate of 361 pilots per year. In FY 1995, the T-45TS began full-rate production. The Program Office plans to acquire a total of 234 aircraft by FY 2005 and estimated life-cycle costs for the T-45TS Program to total about \$15.4 billion.

Objectives. The Joint Logistics Commanders requested an audit of hazardous material management for major Defense systems. The T-45TS is one of nine programs included in the audit. The overall audit objective was to evaluate the adequacy of planning and providing for the reduction and control of hazardous materials used in the design, manufacture, maintenance, and disposal for the T-45TS. Specifically, we evaluated whether the program manager managed the selection, use, and disposal of hazardous materials so that DoD would incur the lowest cost required to protect human health and the environment over the system's life cycle that is consistent with the system's cost, schedule, and performance goals. We also evaluated the management control program as it related to the audit objective.

Results. Overall, the T-45TS Program Office planned and provided for the reduction and elimination of hazardous material in the T-45TS. However, the following two areas warrant management attention.

- The Naval Air Station Kingsville did not establish a Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) with Hazardous Substance Management System (HSMS) software that controls, tracks, and reduces the variety and use of hazardous material. Also, the Naval Air Station Kingsville did not have a hazardous material minimization center (the Center) that provides centralized storage, distribution, and reutilization of hazardous material and the disposal of hazardous material waste. Further, the T-45TS Program Office contracted for a hazardous material module to its Government-on-Line-Data (GOLD) System that will measure hazardous material use against a given work item; however, the module does not provide a life-cycle approach for managing hazardous material as does HSMS. As a result, by not establishing a CHRIMP with HSMS software and a fully operational Center, the Naval Air Station Kingsville did not achieve life-cycle hazardous material control, management, and pollution prevention for the T-45TS in conformance with Navy policy. Further, the T-45TS Program Office efforts to establish the

Government-on-Line-Data System's hazardous material module impeded Navy efforts to standardize hazardous substance management (finding A).

- The T-45TS Program Office did not include in the program's life-cycle cost estimate and demilitarization and disposal plan the cost for demilitarization, disposal, and environmental cleanup of the T-45TS at the end of its useful life. As a result of the incomplete total life-cycle cost estimate, the Program Office could not accurately report in Navy financial statements the liability for demilitarization, disposal, and environmental cleanup costs for the T-45TS (finding B).

Recommendations in this report, if implemented, will improve the hazardous material management of the T-45TS. The management controls that we reviewed were effective in that we identified no material management control weakness (Appendix A).

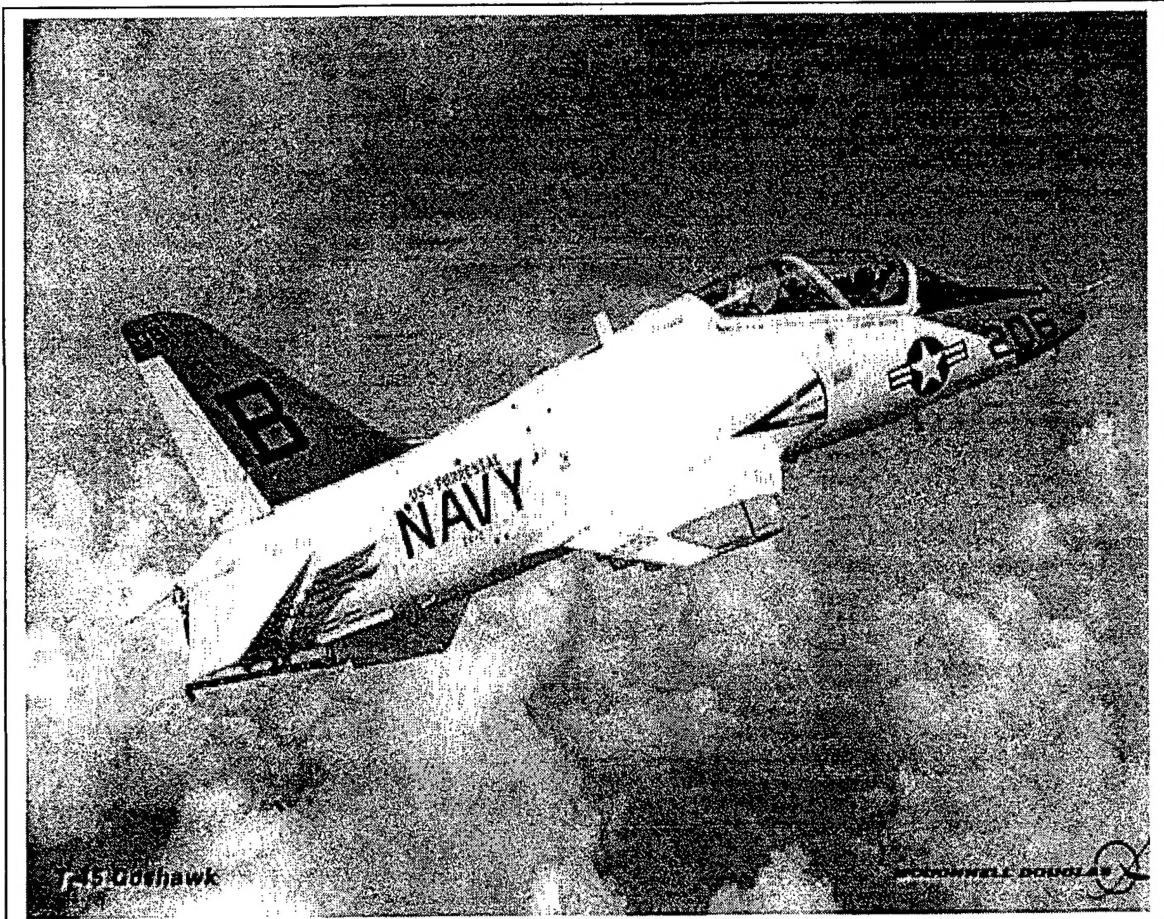
Summary of Recommendations. We recommend that the Navy program, budget, and allocate funds to implement the CHRIMP with the HSMS at the Naval Air Station Kingsville, Texas; establish the CHRIMP with the HSMS, including a fully operational centralized hazardous material minimization center; determine whether the T-45TS Program Office needs the Government-on-Line-Data System's hazardous material module after the Naval Air Station Kingsville implements the CHRIMP with the HSMS; require the contractor to use the HSMS in its FY 2000 and future contractor logistics support contracts; and develop and include environmental cleanup costs along with demilitarization and disposal costs of the T-45TS in annual total ownership cost updates.

Management Comments. We received comments from the Office of the Assistant Secretary of the Navy (Research, Development, and Acquisition). Although the Office of the Assistant Secretary of the Navy nonconcurred with the findings and recommendations, it provided comments that meet the intent of the recommendations concerning the implementation of the CHRIMP with the HSMS at the Naval Air Station Kingsville, Texas. The Office of the Assistant Secretary of the Navy also agreed to develop and include environmental cleanup costs along with demilitarization and disposal costs of the T-45TS in annual total ownership cost updates. A discussion of the management comments is in the Findings section of the report, and the complete text is in the Management Comments section.

Audit Response. The comments from the Office of the Assistant Secretary of the Navy (Research, Development, and Acquisition) were responsive to our recommendations. Therefore, no additional comments are required in response to this report.

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T-45 Undergraduate Jet Pilot Training Aircraft

Background

This report discusses the adequacy of planning and providing for the reduction and control of hazardous materials used in the design, manufacture, maintenance, and disposal for the T-45 Undergraduate Jet Pilot Training System (the T-45TS). DoD environmental management policy relating to hazardous materials is to prevent, mitigate, or remediate environmental damage that acquisition programs cause. In designing, manufacturing, testing, operating, and disposing of systems, DoD program managers are to prevent or reduce all forms of pollution at the source, whenever feasible. Prudent investments in pollution prevention can reduce life-cycle environmental costs and liability and improve environmental quality and program performance. Further, the Secretary of Defense, in his 1998 annual report to the President and Congress, stated that DoD urgently needed to reduce the total ownership costs of its systems to sustain force modernization and recapitalization. To reduce total ownership costs, program managers need to focus on total life-cycle costs in the development and production phases of the weapon system acquisition life cycle so that trade-offs can be made between investments in the development and production phases and reduced costs in the operation and support phase. Appendix B provides definitions of technical terms used in this report.

The T-45TS is a Navy Acquisition Category IC program designed to provide the necessary tools to train carrier and strike aviators for the Navy and Marine Corps. The T-45TS consists of T-45A/C aircraft, as shown on the opposite page, with supporting ground equipment, contractor maintenance, and a pilot training integration system that incorporates classroom academics, sophisticated flight simulators, and a training support center. The T-45TS supports a training rate of 361 pilots per year. In FY 1995, the McDonnell Douglas Corporation¹ began full-rate production of the T-45TS. The T-45TS Program Office plans to acquire a total of 234 aircraft by FY 2005 and estimated that the T-45TS Program total ownership costs through FY 2035 would be \$15.4 billion. Since December 1987, the Program Office has awarded integrated logistics support contracts for the T-45TS.

Objectives

The Joint Logistics Commanders requested an audit of hazardous material management for major Defense systems. The T-45TS is one of nine programs included in the audit. The overall audit objective was to evaluate the adequacy of planning and providing for the reduction and control of hazardous materials used in the design, manufacture, maintenance, and disposal for the T-45TS. Specifically, we evaluated whether the program manager managed the selection, use, and disposal of hazardous materials so that DoD would incur the lowest cost required to protect human health and the environment over the system's life cycle that is consistent with the system's cost, schedule, and performance goals. We also evaluated the management control program as it related to the audit objective. This report is the third in a series of reports on our ongoing audit of

¹The Boeing Company acquired the McDonnell Douglas Corporation in FY 1997.

hazardous material management for major Defense systems. The first and second reports address hazardous material management for the Army Grizzly Program and the Air Force C/KC-135 Stratotanker Aircraft, respectively. Appendix A discusses the scope and methodology used to accomplish the objective as well as management controls and prior audit coverage.

Noteworthy Environmental Efforts

The T-45TS Program Office incorporated environmental planning into the acquisition process by establishing an environmental integrated product team and an environmental coordinator position to facilitate pollution prevention, by identifying and qualifying alternatives for known hazardous materials, and by planning and executing the requirements for the National Environmental Policy Act.

Integrated Product Team. The T-45TS Assistant Program Manager for Logistics established an integrated product team, the Materials and Process Action Team, to address all aspects of environmental security for the T-45TS. The Materials and Process Action Team used a disciplined approach to change hazardous materials and processes, facilitated the approval of new maintenance processes, ensured that technical manual procedures complied with environmental policy, defined pollution prevention requirements for the T-45TS, and executed environmental changes to procedures and materials necessary to comply with environmental policy.

In 1996, the Navy awarded to the T-45TS Program Office the Chief of Naval Operations and the Secretary of the Navy 1995 Environmental Security Awards for Pollution Prevention for incorporating environmental planning into the acquisition process by identifying and qualifying environmental alternatives and by implementing material management programs to reduce cost and risk. In 1999, the Navy awarded to the Program Office the Chief of Naval Operations and the Secretary of the Navy 1998 Environmental Security Awards for Pollution Prevention for efforts of the Materials and Process Action Team to procure a nonpolluting paint removal system called FLASHJET™ as an alternative to chemicals and plastic blast media. The Naval Air Station Kingsville, Texas, a maintenance facility for the T-45TS aircraft, installed FLASHJET™ at its activity to improve operator working conditions, reduce hazardous waste, eliminate hazardous air pollutants, decrease turn-around time, and reduce staffing. In addition, the T-45TS Program received honorable mention for the "1998 Environmental Security Awards for Pollution Prevention-Weapon Systems Acquisition Team" and an honorable mention award for the "1999 White House Closing the Circle Awards for Sowing the Seeds for Change" category.

Environmental Coordinator. In 1991, the T-45TS Assistant Program Manager for Logistics established the position of program environmental coordinator within the Lead Maintenance Technology Center for the Environment located at the Naval Aviation Depot Jacksonville, Florida. The program environmental coordinator co-chairs the Materials and Process Action Team, serves as an

environmental security and technical advisor to the T-45TS Program Office, and coordinates all environmentally related practices to ensure contractor commitment to pollution prevention.

Elimination of Hazardous Materials. The European Union and the United States established a production ban on Class I ozone-depleting substances effective on December 31, 1994, and December 31, 1995, respectively. Before awarding several contracts in September 1993, the Materials and Process Action Team, in conjunction with the T-45TS Program Office, undertook a comprehensive review of all T-45TS contract-related documents for noncompliant materials. The team generated a database of line-by-line call-outs of ozone-depleting substances and validated alternatives to be used in place of the ozone-depleting substances. The process allowed the T-45TS Program Office to eliminate nonessential, high-cost materials and to identify those applications having no safe alternatives. The Program Office eliminated all but the following regulated materials that the contractor used to perform logistics support maintenance: MIL-C-81302, Freon 113; MIL-P-23377, Primer; and MIL-T-19588, Toluene.

National Environmental Policy Act. Since 1992, the T-45TS Program Office has conducted environmental assessments, as required by the National Environmental Policy Act of 1969. The environmental assessments evaluated the impacts associated with fielding the T-45TS aircraft, instructors, pilot trainees, and simulators to new locations. In 1995, the T-45TS Program Office performed an environmental assessment for a follow-on operational test and evaluation at Patuxent River, Maryland. In 1998, the Program Office conducted another environmental assessment to evaluate the potential impacts of a proposed engine overhaul capabilities program, an integrated maintenance concept program, and a FLASHJET™ paint removal system. As a result of the environmental assessments showing no significant environmental impact, the Program Office implemented those programs and system.

Overall, the T-45TS Program Office planned and provided for the reduction and elimination of hazardous material in the T-45TS. However, the Naval Air Station Kingsville, a maintenance facility for the T-45TS aircraft, did not establish a Consolidated Hazardous Material Reutilization and Inventory Management Program with Hazardous Substance Management System software and a fully operational hazardous material minimization center. In addition, the Program Office did not include in the program's life-cycle cost estimate the cost for demilitarization, disposal, and environmental cleanup of the T-45TS at the end of its useful life. A discussion of the associated findings follows.

A. Hazardous Material Reutilization and Inventory Management

The Naval Air Station Kingsville did not establish a Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) with Hazardous Substance Management System (HSMS) software that controls, tracks, and reduces the variety and use of hazardous material. Also, the Naval Air Station Kingsville did not have a hazardous material minimization center (the Center) that provides centralized storage, distribution, and reutilization of hazardous material and the disposal of hazardous material waste. Further, the T-45TS Program Office contracted for a hazardous material module to its Government-on-Line-Data (GOLD) System that will measure hazardous material use against a given work item; however, the module does not provide a life-cycle approach for managing hazardous material as does HSMS. The Naval Air Station Kingsville did not establish a CHRIMP with HSMS software and a fully operational Center because supply personnel believed that their existing implementation of CHRIMP met Navy requirements. The Program Office advised that it contracted for the GOLD System's hazardous material module because it considered the module to be a streamlining effort to make material tracking an integral part of the T-45TS maintenance process. As a result, by not establishing a CHRIMP with HSMS software and a fully operational Center, the Naval Air Station Kingsville did not achieve life-cycle hazardous material control, management, and pollution prevention for the T-45TS in conformance with Navy policy. Further, the T-45TS Program Office efforts to establish the GOLD System's hazardous material module impeded Navy efforts to standardize hazardous substance management.

Criteria on Hazardous Material Management

DoD Guidance. DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs," Change 4, May 11, 1999,² requires that program managers establish a hazardous material management program to ensure that appropriate consideration is given to eliminating and reducing the use of hazardous materials in processes and products rather than simply managing pollution created (Executive Order 12856³). The Regulation also requires that program managers evaluate and manage the selection, use, and disposal of hazardous materials by considering environmental, safety, and health factors so that DoD incurs the lowest cost required to protect human health and the environment over the system's life-cycle, consistent with the program's cost, schedule, and performance goals. For those times in which use of a hazardous

²DoD initially issued DoD Regulation 5000.2-R on March 15, 1996, and it included the requirement to establish a hazardous material management program.

³Executive Order 12856, "Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements," August 3, 1993.

material cannot be avoided, the program manager is to develop and implement plans and procedures for identifying, minimizing use of, tracking, storing, handling, packaging, transporting, and disposing of such material and equipment.

Navy Guidance. Office of the Chief of Naval Operations Instruction 5090.1B, "Environmental and Natural Resource Program Manual," Change 1, February 2, 1998, provides policies and procedures applicable to all Navy shore facility operations and assigns responsibilities for CHRIMP and HSMS⁴ implementation. The Instruction defines the CHRIMP as the methodology that the Navy adopted to achieve life-cycle hazardous material control, management, and pollution prevention at the command and facility levels. It requires Navy facilities to fully implement the CHRIMP to reduce the amount of hazardous material used and hazardous waste generated. By fully implementing the CHRIMP, the Navy facilities could reduce the amount of procured, stocked, and distributed hazardous material eventually disposed of as waste. The Instruction also requires the Environmental Protection, Safety, and Occupational Health Division, Office of the Deputy Chief of Naval Operations (Logistics), to do the following:

- develop and implement policy regarding the use of CHRIMP and the HSMS at shore facilities;
- act as the resource and assessment sponsor for the initial implementation of HSMS at facilities; and
- coordinate with Navy programs to ensure that Navy acquisition efforts are fully compliant with environmental laws and policies through all phases of the acquisition process, including ultimate disposal.

The Instruction requires the Commander, Naval Supply Systems Command, to do the following:

- assist the Environmental Protection, Safety, and Occupational Health Division in managing the hazardous material aspects of the Navy pollution prevention effort;
- develop and maintain HSMS for shore activities in support of CHRIMP;
- provide initial assistance and computer equipment to implement CHRIMP and HSMS at shore facilities; and
- represent Navy interests in all HSMS software development efforts.

The Instruction also requires major claimants for acquisition programs to budget and allocate funds for implementing CHRIMP and HSMS at shore facilities. The major claimants are also required to assist the Commander, Naval Supply

⁴The Hazardous Substance Management System is the principle software system that the Navy uses ashore to augment the CHRIMP

Systems Command, in implementing CHRIMP and HSMS at shore facilities. Further, the Instruction requires that commanders and commanding officers of shore facilities implement HSMS and establish Centers to centrally manage all hazardous material at their facilities.

According to a Naval Supply Systems Command CHRIMP Executive Summary, the ultimate goal of CHRIMP implementation is to manage hazardous material throughout its life cycle. To accomplish that goal, shore activities are to establish one or more Centers for the centralized storage, distribution, and reutilization of hazardous material and for the disposal of hazardous material waste. To centrally control hazardous material, Centers are to use a system that provides on-line inventory visibility; requisition processing; inventory tracking, including issue and turn-in; breakdown of chemical constituents; and internal and external reporting capabilities. The DoD designed and the Navy mandated the use of HSMS to centrally control hazardous material at shore facilities.

Under CHRIMP implementation requirements, the Center personnel are to screen a customer request for hazardous material and, if the request passes screening, the personnel are to make the material available to the customer after the following:

- the Center's personnel package the hazardous material in the required amount;
- the HSMS generates a delivery order and bar coded labels that the Center's personnel affix to the hazardous material container;
- the Center's personnel attach a material safety data sheet to the container; and
- the HSMS adjusts the on-hand inventory levels in its databases, generates a receipt document, and calculates applicable charges to the customer.

If the customer request fails screening, the Center's personnel are to attempt to obtain a suitable substitute material. If the customer request passes screening, but the material is not in stock, the Center's personnel are to attempt to locate the material at other centers rather than generating a new requirement. When a customer finishes a task using hazardous material, or at the end of a work day, the customer is to return the unused portion of the material and its container to the Center. If the material can be reused again, the Center's personnel repackage the material for future issue. The Center's personnel enter the transaction into the HSMS to adjust the inventory level and credit the customer's account. If the hazardous material cannot be used again, the Center's personnel are to process the material as hazardous waste.

Consolidated Hazardous Material Reutilization and Inventory Management Program

Operating the Hazardous Material Minimization Center. The Supply Officer, Naval Air Station Kingsville, believed that the Naval Air Station Kingsville had a model CHRIMP Center that met Navy requirements. However, personnel from the Naval Air Training Management Support Activity Detachment, the Public Works Department, and the maintenance contractor at the Naval Air Station Kingsville discussed with us and we observed that the Naval Air Station Kingsville did not establish a fully operational Center in compliance with Navy guidance. Specifically, the established Center did not have centralized storage, distribution, and reutilization of hazardous material and did not package and issue bar-coded hazardous material in the quantity that the maintenance contractor required to perform the task at hand. Further, the maintenance contractor stored hazardous material at multiple locations in limited access hazardous material lockers under the control of assigned hazardous waste custodians. Maintenance personnel obtained hazardous material from the custodians, and when they completed the work, they returned any unused portion of the hazardous material to the custodians. The custodians then recorded on chemical tracking sheets a guesstimate of the amount of hazardous material that the maintenance personnel used and the waste generated. The contractor's environmental specialist collected the data from the custodians and entered the data into a makeshift hazardous material tracking system, as time permitted, because of the following reasons:

- the Naval Air Station Kingsville did not establish an HSMS to track all issues and returns of hazardous material and hazardous material containers, and
- the contractor's makeshift hazardous material tracking system was not automated to consolidate data from multiple locations.

The program environmental coordinator for the T-45TS believed that the accuracy and timeliness of the maintenance contractor data were not significant because logistics support analysis projections fixed the amount of support material required per aircraft, and the population of aircraft at Naval Air Station Kingsville did not change.

Establishing a Fully Operational CHRIMP. Personnel from both the Environmental Protection, Safety, and Occupational Health Division, Office of the Chief of Naval Operations, and from the Hazardous Minimization Program Office East, Office of the Naval Supply Systems Command, stated that Navy shore facilities must establish a CHRIMP that includes a fully operational Center by December 31, 1999. Further, they stated the following:

- the Hazardous Minimization Program Office East, assist team visited the Naval Air Station Kingsville in June 1999 to evaluate the CHRIMP,⁵ including the Center, and to implement the HSMS software; and
- the Office of the Navy Inspector General, Norfolk, Virginia, developed, with assistance from the Environmental Protection, Safety, and Occupational Health Division and the Hazardous Minimization Program Office East, a Navy Shore Activity CHRIMP checklist for use during shore facility inspections.

The inspection team uses the checklist to identify weaknesses and to promote uniformity in the implementation of the CHRIMP. For example, the inspectors use the checklist to determine whether the following took place:

- the host activity established and designated a single organization entity as the centralized Center operator;
- all tenant activities, every department, and cost centers on the installation participated in the designated Center operation;
- the Center had a central point of processing for all receipts of hazardous material, including tracking of hazardous material on a centralized database;
- the Center issued hazardous material to users in quantities expected to be used in a short-term time period; and
- the HSMS tracked all issues and returns of hazardous material and hazardous material containers.

Major claimants, type commanders, and commanding officers of shore activities and tenant commands could also use the checklist to ensure that their respective organizations are in compliance with the Chief of Naval Operations mandates as defined in Office of the Chief of Naval Operations Instruction 5090.1B and various implementing messages.⁶

Personnel from the Hazardous Minimization Program Office East also stated that their scheduled visit to Naval Air Station Kingsville to evaluate the CHRIMP, including the Center, and to implement HSMS software would only provide initial operational capability to the Naval Air Station Kingsville. To bring the CHRIMP and the HSMS software up to full-operational capability, the

⁵The assist team's evaluation is expected to take about 2 months to complete.

⁶Chief of Naval Operations Message 011801Z MAY 95, "Navy-Wide Implementation of CHRIMP," mandates the Navy-wide implementation of CHRIMP. Chief of Naval Operations Message 031903Z APR 96, "Navy-Wide Implementation of Hazardous Substance Management System (HSMS) and CHRIMP," requests major claimants to provide maximum support to their organizations in the implementation of CHRIMP and HSMS and to assist the Office of the Chief of Naval Operations, the Naval Supply Systems Command, and regional environmental coordinators in their efforts to implement CHRIMP and HSMS

Naval Air Station Kingsville would need additional funding. The major claimant for Naval Air Station Kingsville is the Chief, Naval Education and Training. As the major claimant, the Office of the Chief of Naval Operations Instruction 5090.1B requires the Office of the Chief, Naval Education and Training, to program, budget, and allocate the funds to establish a CHRIMP and an HSMS at the Naval Air Station Kingsville. Further, the Instruction requires the Office of the Chief, Naval Education and Training, to assist the Naval Supply Systems Command in implementing CHRIMP and HSMS at Naval Air Station Kingsville. Therefore, the Office of the Chief, Naval Education and Training, should program, budget, and allocate funds to the Naval Air Station Kingsville to enable it to establish a full-operational capability for the CHRIMP and HSMS software.

Government-on-Line-Data System

Hazardous Material Module. The T-45TS Program Office contracted with Boeing, the maintenance contractor, to provide T-45TS maintenance and support at the T-45TS Maintenance Activity, a tenant command at the Naval Air Station Kingsville. The Program Office required the maintenance contractor to use the GOLD System to support the maintenance and material management efforts of the T-45TS aircraft. According to the T-45TS Program Office, the GOLD System is a logistics software system composed of several modules and subsystems to document maintenance support for all levels of maintenance and associated supply transactions for the T-45TS aircraft.

As a streamlining effort under the tenet of "better business practice," the T-45TS Program Office stated that it contracted with Boeing to develop and add a hazardous material module to its existing GOLD System. The module makes hazardous material tracking an integral part of the maintenance workers' daily shop routine and makes hazardous material use and disposal data available for required environmental reporting; however, the module does not provide a life-cycle approach for managing hazardous material as does HSMS.

The T-45TS Program Office believed that the GOLD System's hazardous material module is complementary to the HSMS software. However, according to personnel from the Hazardous Minimization Program Office East, dual hazardous material entries may be necessary because the GOLD System's hazardous material module may not interface with the mandated HSMS. In June 1999, the Hazardous Minimization Program Office East assist team began its 2-month evaluation of the CHRIMP and implementation of the HSMS and its interface with the GOLD System's hazardous material module at the Naval Air Station Kingsville. According to assist team personnel as of July 1999, if the maintenance contractor obtains its hazardous materials from sources other than the Hazardous Material Minimization Center at the Naval Air Station Kingsville, the contractor will need to have HSMS software to control, track, and reduce the variety and use of hazardous material because the GOLD System's hazardous material module does not interface with HSMS software.

Boeing personnel stated that the GOLD System's hazardous material module passed its functional operational test on April 6, 1999; however, as of July 7, 1999, the work centers had not implemented the module. The Program Office estimated that the contract cost for the GOLD System's hazardous material module was about \$20,000.

Defense Management Report Decision. Defense Management Report Decision No. 920, "DoD Environmental Management," August 11, 1994, states that, although each DoD installation is ultimately responsible for environmental compliance, no reason exists to allow each DoD Component to individually attempt to carry out its environmental mission. Accordingly, the Navy Environmental Protection, Safety, and Occupational Health Division (the Division) personnel stated that the T-45TS Program Office should not have had to spend program funds to modify its GOLD System to track hazardous material. Further, the Division personnel stated that the Program Office's hazardous material modification to its GOLD System appeared to duplicate functions of the HSMS. The Division stated that it would assist the Naval Air Station Kingsville in implementing the CHRIMP with HSMS to ensure that the Naval Air Station Kingsville is compliant with environmental laws and policies.

Life-Cycle Hazardous Material Control, Management, and Pollution Prevention

By not establishing a CHRIMP with HSMS software and a fully operational Center, the Naval Air Station Kingsville did not achieve life-cycle hazardous material control, management, and pollution prevention for the T-45TS in conformance with Navy policy. Further, the T-45TS Program Office efforts to establish the GOLD System's hazardous material module impeded Navy efforts to standardize hazardous substance management.

Management Comments on the Finding and Audit Responses

Summaries of management comments on the finding and our responses are in Appendix C.

Recommendations and Management Comments

A.1. We recommend that the Chief, Naval Education and Training, program, budget, and allocate funds to establish and assist the Naval Supply Systems Command in implementing the Consolidated Hazardous Material Reutilization and Inventory Management Program with the Hazardous Substance Management System at Naval Air Station Kingsville, Texas.

Management Comments. The Deputy Assistant Secretary of the Navy for Planning, Programming, and Resources, Office of the Assistant Secretary of the Navy (Research, Development, and Acquisition), nonconcurred, stating that the recommended action is unnecessary. He stated that the Naval Air Station

Kingsville implemented CHRIMP in June 1993 and that all elements of its hazardous material program were already fully implemented. Further, he stated that the Naval Supply Systems Command is mission funded to provide necessary hardware, software, and training support for HSMS. Naval Supply Systems Command representatives will be at the Naval Air Station Kingsville during August 1999 to determine the resources necessary to implement HSMS. Additionally, he stated that the Office of the Chief, Naval Education and Training, has budgeted funds for FY 2000 to support any equipment upgrades necessary to facilitate the integration of HSMS at the Naval Air Station Kingsville. The complete text is in the Management Comments section of this report.

Audit Response. The action that the Office of the Chief, Naval Education and Training, took to budget funds in FY 2000 to facilitate the integration of HSMS at the Naval Air Station Kingsville meets the intent of our recommendation.

A.2. We recommend that the Commanding Officer, Naval Air Station Kingsville, Texas, establish the Consolidated Hazardous Material Reutilization and Inventory Management Program with the Hazardous Substance Management System, including a fully operational centralized hazardous material minimization center, to track and manage hazardous materials at Naval Air Station Kingsville, in accordance with Office of the Chief of Naval Operations Instruction 5090.1B, "Environmental and Natural Resource Program Manual," Change 1, February 2, 1998.

Management Comments. The Deputy Assistant Secretary of the Navy for Planning, Programming, and Resources nonconcurred, stating that the action suggested by the recommendation is unnecessary as discussed in his response to Recommendation A.1. For the purpose of verifying the veracity of Office of the Chief, Naval Education and Training, comments, the Deputy requested that we revisit the Naval Air Station Kingsville with Office of the Chief, Naval Education and Training, Program Managers. The appropriate Naval Air Station Kingsville managers welcome the opportunity to visually demonstrate that the command is in compliance with Office of the Chief of Naval Operations Instruction 5090.1B.

Audit Response. On July 7 and 8, 1999, we contacted personnel from the Hazardous Minimization Program Office East, Office of the Naval Supply Systems Command, to discuss the implementation of the CHRIMP with HSMS at the Naval Air Station Kingsville. Based on their assist team visit to the Naval Air Station Kingsville in June 1999, they stated that the Naval Air Station Kingsville had implemented CHRIMP and that the HSMS software should be fully operational by December 31, 1999. Instead of revisiting the Naval Air Station Kingsville, we request that the Hazardous Minimization Program Office East provide us documentation in January 2000 to confirm that the Naval Air Station Kingsville has established a CHRIMP with HSMS software and a fully operational centralized hazardous material minimization center. The documentation will confirm that the Naval Air Station Kingsville is in compliance with the Navy instruction.

A.3. We recommend that the Director, Environmental Protection, Safety, and Occupational Health Division, Office of the Deputy Chief of Naval Operations (Logistics), determine whether the T-45 Undergraduate Jet Pilot Training System Program Office needs the Government-on-Line-Data System's hazardous material module after Naval Air Station Kingsville implements the Consolidated Hazardous Material Reutilization and Inventory Management Program with the Hazardous Substance Management System.

Management Comments. The Deputy Assistant Secretary of the Navy for Planning, Programming, and Resources nonconcurred, stating that HSMS and the GOLD System's hazardous material module are used for complimentary, not redundant purposes. He also stated that no requirement exists for dual entry by the maintenance contractor or Naval Air Station Kingsville personnel.

Audit Response. As discussed in the report, the Environmental Protection, Safety, and Occupational Health Division (the Division), Office of the Deputy Chief of Naval Operations (Logistics), personnel stated that the T-45TS Program Office should not have had to spend program funds to modify its GOLD System to track hazardous material. Further, the Division personnel stated that the Program Office's hazardous material modification to its GOLD System appeared to duplicate functions of the HSMS.

On July 8, 1999, we met with the Director, Environmental Protection, Safety, and Occupational Health Division, concerning the GOLD System's hazardous material module interface with HSMS. During the meeting, the Director contacted personnel from the Hazardous Minimization Program Office East, Office of the Naval Supply Systems Command, concerning the GOLD System's hazardous material module interface with HSMS. The personnel stated that an interface problem with the GOLD System's hazardous material module and HSMS software would not occur as long as the maintenance contractor, who uses the GOLD System to support the maintenance and material management efforts of the T-45TS aircraft, obtained its hazardous material directly from the Hazardous Material Minimization Center at the Naval Air Station Kingsville. If the contractor obtained its hazardous materials from sources other than the Hazardous Material Minimization Center, the contractor would need to have HSMS software to control, track, and reduce the variety and use of hazardous material because the GOLD System's hazardous material module does not interface with HSMS software. During our audit, the maintenance personnel were not required to obtain hazardous material from a centralized hazardous material minimization center; however, after the Naval Air Station Kingsville implements the HSMS software in December 1999, maintenance personnel will obtain hazardous material directly from the hazardous material minimization center.

The Director was satisfied with the GOLD System's hazardous material module and HSMS configuration at Naval Air Station Kingsville as long as the maintenance contractor was required to obtain its hazardous material directly from the Hazardous Material Minimization Center at the Naval Air Station Kingsville. The Director's position on the use of the GOLD System's hazardous material module meets the intent of our recommendation.

A.4. We recommend that the Program Manager for the T-45 require the contractor to use the Hazardous Substance Management System in its FY 2000 and future contractor logistics support contracts.

Management Comments. The Deputy Assistant Secretary of the Navy for Planning, Programming, and Resources nonconcurred, stating that Naval Air Station personnel use HSMS, not the T-45 contractor. Therefore, an HSMS requirement does not need to be added to current or future contractor logistics support contracts.

Audit Response. At the time of our audit, the Naval Air Station Kingsville had not established a fully operational hazardous material minimization center in compliance with Navy guidance. It did not have centralized storage, distribution, and reutilization of hazardous material and did not package and issue bar-coded hazardous material in the quantity that the maintenance contractor required to perform the task at hand. Instead, the Naval Air Station Kingsville relied on the maintenance contractor to store, track, and account for hazardous material. As discussed in our response to Recommendation A.2., personnel from the Hazardous Minimization Program Office East stated that the HSMS software should be fully operational by December 31, 1999. Because the Deputy has indicated that maintenance contractor personnel will in the future obtain all hazardous material from the Hazardous Material Minimization Center at the Naval Air Station Kingsville, we agree that it is not now necessary for the maintenance contractor to be required to use HSMS software through future logistics support contracts.

B. Environmental Life-Cycle Costs

The T-45TS Program Office did not include in the program's life-cycle cost estimate and demilitarization and disposal plan the cost for demilitarization, disposal, and environmental cleanup of the T-45TS at the end of its useful life. The Program Office excluded demilitarization, disposal, and cleanup costs because of the following:

- historical cost data for demilitarization and disposal of weapon systems were not readily available and
- the Navy did not develop the technical expertise or models to estimate life-cycle costs for demilitarization, disposal, and environmental cleanup.

As a result of the incomplete total life-cycle cost estimate, the Program Office could not accurately report in Navy financial statements the liability for demilitarization, disposal, and environmental cleanup costs for the T-45TS.

Life-Cycle Cost Estimating and Reporting Guidance

DoD Guidance. DoD Regulation 5000.2-R, Change 4, May 11, 1999;⁷ DoD Manual 5000.4-M, "Department of Defense Cost Analysis Guidance and Procedures," December 1992; and the Defense Acquisition Deskbook provide life-cycle cost estimating and reporting guidance.

DoD Regulation. DoD Regulation 5000.2-R requires that life-cycle cost estimates be comprehensive and identify all costs for the development, production, and operation of a system regardless of the source of funding.

DoD Manual. DoD Manual 5000.4-M provides guidance on the content of a cost analysis requirements description. Program offices and DoD Component cost analysis teams use the cost analysis requirements description as the basis for preparing program life-cycle cost estimates.

Defense Acquisition Deskbook. The Defense Acquisition Deskbook addresses life-cycle estimates in its "Scope of Life-Cycle Cost Estimates" and the "Cost Estimate Documentation Guidelines" sections. Specifically, the Deskbook states that life-cycle cost estimates should:

- cover the entire planned life of a program and include all cost categories (concept exploration, if applicable; demonstration and validation; engineering and manufacturing development; production and deployment; operations and support; and demilitarization and disposal) and all appropriation accounts; and

⁷DoD initially issued DoD Regulation 5000.2-R on March 15, 1996, and it included the requirement to prepare a comprehensive life-cycle cost estimate.

- address environmental costs (examples of such costs include pollution prevention, hazardous waste management, demilitarization and disposal of equipment, and cleanup of real estate).

Navy Policy. Secretary of the Navy Instruction 5000.2B, "Implementation of Mandatory Procedures for Major and Non-Major Defense Acquisition Programs and Major and Non-Major Information Technology Acquisition Programs," December 6, 1996,⁸ and the Assistant Secretary of the Navy (Research, Development, and Acquisition) memorandum, May 8, 1998, provide life-cycle cost estimating and reporting guidance for the Navy.

Navy Instruction. The Instruction defines life-cycle ownership cost to include the cost to develop, acquire, operate, support, and dispose of the system and the related logistics infrastructure. The Instruction designates the Naval Center for Cost Analysis (the Naval Center) as the Navy organization responsible for preparing Acquisition Category IC independent cost estimates. The Naval Center participates in developing life-cycle cost estimates and establishes policy on cost analyses. However, the Director of the Naval Center stated that the Naval Center has yet to establish Navy policy requiring the cost analyses to include demilitarization and disposal data. The Instruction also requires program offices to prepare a program life-cycle cost estimate at the initial program milestone and later milestone reviews and a cost analysis requirements description before the preparation of the program life-cycle cost estimate.

Assistant Secretary of the Navy Memorandum. In May 1998, the Assistant Secretary of the Navy (Research, Development, and Acquisition) directed that each Navy acquisition category program revise its current approved Acquisition Program Baseline and establish a total ownership cost objective and threshold as part of a long-term cost reduction initiative. Total ownership cost includes demilitarization and disposal costs.⁹

Federal Financial Accounting Standards Guidance. The Statement of Federal Financial Accounting Standards (SFFAS) No. 6, "Accounting for Property, Plant, and Equipment," requires that Federal agencies, beginning in FY 1998, recognize a liability in agency financial statements for cleanup costs associated with Federal property, plant, and equipment, including weapons systems, when the agency places the property, plant, and equipment into service. SFFAS No. 6 defines cleanup costs as those costs to remove, contain, or dispose, or any combination of the three, of hazardous waste from material or property that is permanently or temporarily shut down. In addition, cleanup costs include decontamination, decommissioning, site restoring, site monitoring, and closure and post-closure costs. Further, DoD has yet to provide guidance to the Military Departments for reporting on the environmental liability.

⁸Secretary of the Navy Instruction 5000.2B amplifies DoD Regulation 5000.2-R. Appendix VII, "Glossary," of the Instruction defines terms used in the Instruction but not found in the DoD Regulation 5000.2-R glossary

⁹Total ownership cost guidance and templates are available on the Internet at <http://www.navsea.navy.mil/sea017/toc.htm>.

T-45TS Life-Cycle Cost Estimate

The T-45TS Program Office did not include in the program's life-cycle cost estimate and demilitarization and disposal plan the cost for demilitarization, disposal, and environmental cleanup of the T-45TS at the end of its useful life.

Cost Estimate. Naval Air Systems Command cost analysts (the Analysts) provided a life-cycle cost estimate for the T-45TS that did not specifically identify demilitarization, disposal, and environmental cleanup costs. Further, in support of the award of the T-45TS FY 2000 contractor logistics support contract, the Analysts prepared an operations and support cost-estimate that also did not include environmental costs associated with the operation and maintenance of the T-45TS. In addition, the Analysts stated that the life-cycle cost estimate did not include demilitarization, disposal, and environmental cleanup costs because of the following:

- historical cost data for demilitarization and disposal of weapon systems were not readily available and
- the Navy did not develop the technical expertise or models to estimate life-cycle costs for demilitarization, disposal, and environmental cleanup.

The Analysts stated that life-cycle cost estimates for demilitarization, disposal, and environmental cleanup of the T-45TS were difficult to determine because of ever-changing environmental regulations. Processes and materials previously thought to be nonhazardous may now be considered hazardous under new environmental policy. Boeing personnel also stated that actual costs related to environmental activities were difficult to segregate because its accounting system included environmental costs with other overhead costs and because DoD had not established a life-cycle cost estimating model. However, DoD Manual 5000.4-M states that program offices should include the costs of demilitarization, detoxification, or long-term waste storage in the life-cycle cost estimate. Those costs are also needed to meet SFFAS No. 6 requirements.

Demilitarization and Disposal Plan. The T-45TS Program Office had a demilitarization and disposal plan that the contractor developed in 1994. The plan outlines the three different options for removal of the T-45TS aircraft from the inventory. However, the plan did not identify costs to demilitarize and dispose of the T-45TS at the end of its 20-year, 14,400-flight-hour design life cycle. The T-45TS Program Office should have required the contractor to identify the cost of any hazardous, toxic, or radiological materials that may be encountered or generated during the subsystem's development, manufacture, transportation, storage, operation, and disposal, in accordance with DoD Manual 5000.4-M.

Estimating and Reporting DoD Liability for Aircraft Disposal

The General Accounting Office Report No. AIMD-98-9, "DoD's Liability for Aircraft Disposal Can Be Estimated," November 1997, states the following:

- DoD did not implement SFFAS No. 6, which requires recognizing and reporting liabilities such as those associated with aircraft disposal.
- DoD did not provide implementation guidance to the Military Departments.
- Aircraft disposal was an ongoing process, and the Military Departments could reasonably estimate the disposal cost.
- Information on the three major disposal processes, namely demilitarization, storage and maintenance, and hazardous materials removal and disposal, was available to help develop cost estimates.
- DoD officials stated that the total disposal cost estimate for aircraft would result in a significant liability.

The Report also states that Congress, in the National Defense Authorization Act for FY 1995, required DoD to develop life-cycle environmental costs, including demilitarization and disposal costs, for new weapon systems.

Total Ownership Costs

In May 1998, the Assistant Secretary of the Navy (Research, Development, and Acquisition) directed Navy acquisition programs to formulate and implement total ownership cost reduction efforts. Total ownership costs include the costs to research, develop, acquire, own, operate, and dispose of weapon and support systems, other equipment, and real property; the costs to recruit, train, retain, separate, and otherwise support military and civilian personnel; and all other costs of business operations of DoD.

In response to the Assistant Secretary direction, the T-45TS Program Office and the Analysts prepared a Total Ownership Cost Implementation Plan (the Plan) in December 1998. The Plan included demilitarization and disposal costs totaling \$0.9 million (FY 1995 dollars) for demilitarization and storage of the demilitarized parts from the first four aircraft that exceeded their total flight-hour life. The Analysts accounted for the demilitarized parts in a revolving parts inventory. Parts from T-45TS aircraft that exceeded life-cycle time replenished the inventory. The Plan included the cost for disassembly and storage of each aircraft up to FY 2035. The Plan did not account for demilitarization and disposal of all T-45TS aircraft. The Program Office stated that the Analysts were developing demilitarization and disposal costs for the T-45TS and that it would include those costs in the next annual total ownership cost update. The Program Office should continue to include demilitarization and disposal costs, as well as environmental cleanup costs, in its annual total ownership cost updates.

Future Navy Financial Statements

Without a life-cycle cost estimate that includes demilitarization, disposal, and environmental cleanup costs, the T-45TS Program Office could not accurately report the liability for T-45TS environmental cleanup and disposal costs in future Navy financial statements. Because the T-45TS is a fielded system, the Navy is required to report the environmental cleanup and disposal cost liability in accordance with SFFAS No. 6 when DoD guidance becomes available. Although demilitarization, disposal, and environmental cleanup costs may not be highly significant in terms of percentage of system life-cycle cost, they should not be ignored. Cumulatively, the environmental cleanup and disposal costs for Navy weapon systems are likely to represent a material value on Navy and DoD-wide consolidated financial statements.

Management Comments on the Finding and Audit Response

Summaries of management comments on the finding and our response are in Appendix C.

Recommendation and Management Comments

B. We recommend that the Program Manager for the T-45 develop and include environmental cleanup costs along with demilitarization and disposal costs of the T-45 Undergraduate Jet Pilot Training System in annual total ownership cost updates.

Management Comments. The Deputy Assistant Secretary of the Navy for Planning, Programming, and Resources, Office of the Assistant Secretary of the Navy (Research, Development, and Acquisition), concurred, stating that Naval Air Systems Command analysts have updated the total ownership cost estimate to include demilitarization, disposal, and environmental costs and will include those costs in all future estimates. The complete text is in the Management Comments section of this report.

Appendix A. Audit Process

Scope and Methodology

We conducted this audit from September 1998 through April 1999 and reviewed documentation dated from September 1984 through April 1999. To accomplish the audit objective, we took the following steps:

- discussed the issues relating to DoD environmental management and the associated acquisition strategy with Government and contractor personnel;
- assessed whether the T-45TS Program Office implemented the DoD environmental management process in accordance with DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs," Change 4, May 11, 1999;
- reviewed life-cycle costs of the T-45TS Program to determine whether the Program Office included environmental costs;
- evaluated Defense Contract Management Command involvement to reduce life-cycle environmental costs and liability while improving environmental quality and program performance;
- reviewed contractors' environmental program for the T-45TS Program and reviewed available supporting documentation;
- determined whether the T-45TS Program Office had adequate funding to test alternative environmental technologies to reduce pollution;
- determined whether the T-45TS Program Office searched for opportunities to form partnerships for environmental projects, environmental alternative test and evaluation, and validation testing;
- determined whether the T-45TS Program Office was aware of the environmental management process; and
- reviewed the contractor logistics support process to reduce environmental pollution for the T-45TS Program.

Auditing Standards. We conducted this program audit in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We included such tests of management controls as we deemed necessary.

Use of Computer-Processed Data. We did not rely on computer-processed data to develop conclusions on this audit.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD and the Boeing Company, Saint Louis, Missouri. Further details are available upon request.

DoD-Wide Corporate-Level Government Performance and Results Act Goals. In response to the Government Performance and Results Act, DoD established 6 DoD-wide corporate-level performance objectives and 14 goals for meeting the objectives. This report pertains to achievement of the following objective and goal.

Objective: Fundamentally reengineer DoD and achieve a 21st century infrastructure. **Goal:** Reduce costs while maintaining required military capabilities across all DoD mission areas. **(DoD-6)**

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following acquisition functional issue area objective and goal.

Objective: Fostering Partnerships. **Goal:** Reduce total release of toxic chemicals by 20 percent. **(ACQ-2.4)**

General Accounting Office High-Risk Area. The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the Defense Weapons Systems Acquisition high-risk area.

Management Control Program Review

The DoD Directive 5010.38, "Management Control (MC) Program," August 26, 1996, requires DoD managers to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of Review of the Management Control Program. In accordance with DoD Directive 5000.1, "Defense Acquisition," March 15, 1996, and DoD Regulation 5000.2-R, acquisition managers are to use program cost, schedule, and performance parameters as control objectives to implement the requirements of DoD Directive 5010.38. Accordingly, we limited our review to management controls directly related to the hazardous material management of the T-45TS. Because we did not identify a material weakness, we did not assess management's self-evaluation.

Adequacy of Management Controls. Management controls were adequate in that we did not identify any material management control weakness applicable to the audit objective.

Summary of Prior Coverage

During the last 5 years, the General Accounting Office; the Inspector General, DoD; and the Military Department audit agencies have not issued reports specifically addressing the adequacy of planning and providing for the reduction and control of hazardous materials for the T-45TS. The Inspector General, DoD, recently issued two final reports that address hazardous material management for major Defense systems and a final report that addresses reporting environmental and disposal liabilities.

Inspector General, DoD, Report No. 99-160, "Hazardous Material Management on the Grizzly Program," May 17, 1999.

Inspector General, DoD, Report No. 99-177, "Hazardous Material Management for the C/KC-135 Stratotanker Aircraft," June 4, 1999.

Inspector General, DoD, Report No. 99-209, "Data Supporting the DoD Environmental Line Item Liability on the FY 1998 Financial Statements," July 9, 1999.

Appendix B. Definitions of Technical Terms

Acquisition Category. An acquisition category is an attribute of an acquisition program that determines the program's level of review, decision authority, and applicable procedures. The acquisition categories consist of I, major Defense acquisition programs; IA, major automated information systems; II, major systems; and III, all other acquisition programs.

Consolidated Hazardous Material Reutilization and Inventory Management Program. The Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) is the methodology that the Navy has adopted to achieve life-cycle hazardous material control, management, and pollution prevention at the command and facility levels. The Navy CHRIMP Manual provides a standardized approach and guidance for the development and implementation of the centralized hazardous material control and practices.

Demilitarization. Demilitarization is part of the disposal process and is the act of deactivating or rendering a system inoperable by destroying its inherent military offensive or defensive advantage.

Disposal. Disposal is the process of transferring, donating, selling, abandoning, or destroying a system.

Environmental Assessment. An environmental assessment provides sufficient evidence and analysis to determine whether the preparation of an environmental impact statement or a finding of no significant impact is required for an acquisition program to comply with the National Environmental Policy Act.

Environmental Impact Statement. An environmental impact statement provides a detailed description of the effects, impacts, or consequences associated with designing, manufacturing, testing, operating, maintaining, and disposing of a weapon or automated information system.

Finding of No Significant Impact. A finding of no significant impact is a document that a Federal agency prepares to briefly present the reasons why an action will not have a significant effect on the human environment and why an environmental impact statement is not necessary. Additionally, the document includes the environmental assessment or a summary of the environmental assessment for the acquisition program.

Government-on-Line-Data System. The Government-on-Line-Data System is commercial-off-the-shelf software that provides full documentation of the T-45TS contractor logistics support maintenance and material management effort for the T-45TS aircraft. The system documents all material support, maintenance support, asset tracking, and hazardous material tracking. The system also provides on-line access to all contractor-logistics-support users and managers, printed maintenance and material reports, technical manuals, training data, and supply order data.

Hazardous Material. Hazardous material is any waste that because of its quantity; toxicity; corrosiveness; flammability; or physical, chemical, or infectious characteristics may:

- cause or significantly contribute to an increase in mortality or an increase in a serious irreversible or incapacitating reversible illness; or
- pose a substantial present or potential hazard to human health or the environment when the waste is improperly treated, stored, transported, or disposed of.

Hazardous Material Minimization Center. A hazardous material minimization center (the Center) serves as an inventory control center for hazardous material. The Center responds to customer requests for hazardous material by packaging and issuing the quantity of hazardous material required to perform the task at hand. When the customers complete their work, the customers return any unused portion of the hazardous material and the original container to the Center. Center personnel examine the returned hazardous material and determine whether the unused portion can be retained for reuse by another customer, recycled, or disposed of as hazardous waste.

Hazardous Substance Management System. The Hazardous Substance Management System is an automated chemical tracking system for meeting the hazard communications requirement of the Occupational Safety and Health Administration and the chemical tracking and the reporting requirements of the Environmental Protection Agency.

Integrated Product Team. An integrated product team is a group composed of representatives from all appropriate functional disciplines working together to build successful programs, to identify and resolve issues, and to make sound and timely recommendations for decisionmaking.

Life-Cycle Cost. Life-cycle cost is the total cost to the Government of acquiring and owning a system over its useful life and includes the cost to develop, acquire, operate, support, and dispose of the system.

Major Defense System. A major Defense system is a system that the Under Secretary of Defense for Acquisition and Technology has estimated will require an eventual total expenditure for research, development, test, and evaluation of more than \$135 million in FY 1996 constant dollars or for procurement of more than \$640 million in FY 1996 constant dollars.

Appendix C. Audit Responses to Navy Comments Concerning the Report

Our detailed responses to the comments from the Deputy Assistant Secretary of the Navy for Planning, Programming, and Resources, Office of the Assistant Secretary of the Navy (Research, Development, and Acquisition), on statements in the draft report follows. The complete text of those comments is in the Management Comments section of this report.

Management Comments on the Background and Noteworthy Environmental Efforts and Audit Response

Management Comments. The Deputy Assistant Secretary of the Navy for Planning, Programming, and Resources provided updated T-45TS Program background information on pilot training rates, total aircraft inventory, and total ownership costs. In reference to noteworthy environmental accomplishments, he stated that the T-45TS Program also received honorable mention for the “1998 Environmental Security Awards for Pollution Prevention-Weapon Systems Acquisition Team” and an honorable mention award for the “1999 White House Closing the Circle Awards for Sowing the Seeds for Change” category.

Audit Response. We included the updated background information and additional noteworthy efforts in the report.

Management Comments on Finding A. and Audit Response

Management Comments Addressing the Overall Finding. The Deputy Assistant Secretary of the Navy for Planning, Programming, and Resources stated that he did not concur with the finding and commented on the GOLD System’s hazardous material module, the T-45TS Program Office as a tenant at the Naval Air Station Kingsville, and the Hazardous Minimization Program Office East assist team visit.

Hazardous Material Module. The Deputy stated that the T-45TS Program has long been committed to the reduction and the elimination of hazardous material. In this regard, he stated that the GOLD System’s hazardous material module was a central component in the T-45TS Program’s efforts to aggressively reduce and eliminate hazardous materials. The Deputy explained how the module evolved from a process for tracking the quantity of hazardous materials used during maintenance actions. He said that the module was never intended to manage hazardous materials throughout their life-cycles like the HSMS does. However, he noted that the module concisely measures hazardous material use against work items, provides critical information to identify hazardous material reduction opportunities, identifies what hazardous materials are in use at any given time, and serves as a valuable complement to the CHRIMP with HSMS.

Tenant. The Deputy stated that the T-45TS Program and its maintenance support contractors are tenants at the Naval Air Station Kingsville. As tenants, the T-45 Program Office believes that it has fully complied with the policies that the Commanding Officer, Naval Air Station Kingsville, has established concerning the use of hazardous materials.

Assist Team Visit. The Deputy stated that the Hazardous Minimization Program Office East assist team reviewed the Naval Air Station Kingsville CHRIMP in June 1999. The team indicated that Naval Air Station Kingsville has implemented CHRIMP and plans to fully implement HSMS by FY 2000.

Audit Response. Personnel from the Hazardous Minimization Program Office East indicated that dual hazardous material entries may be necessary because the GOLD System's hazardous material module may not interface with the mandated HSMS. The personnel visited the Naval Air Station Kingsville in June 1999 to evaluate the GOLD System's hazardous material module interface with HSMS, as well as other functions. On July 7 and 8, 1999, we contacted the personnel from the Hazardous Minimization Program Office East to discuss the implementation of the CHRIMP with HSMS and the interface of the GOLD System's hazardous material module with HSMS. They stated that the Naval Air Station Kingsville had implemented CHRIMP and that the HSMS software should be fully operational by December 31, 1999. They stated that an interface problem with the GOLD System's hazardous material module and HSMS software would not occur as long as the maintenance contractor, who uses the GOLD System to support the maintenance and material management efforts of the T-45TS aircraft, obtains its hazardous material directly from the Hazardous Material Minimization Center, at the Naval Air Station Kingsville. If the contractor obtains its hazardous materials from sources other than the Hazardous Material Minimization Center, the contractor will need to have HSMS software to control, track, and reduce the variety and use of hazardous material because the GOLD System's hazardous material module does not interface with HSMS software. Further, as the Deputy noted, the GOLD System's hazardous material module is not able to manage hazardous materials throughout their life-cycles like the HSMS software does.

Management Comments Addressing Specific Areas of the Finding. The Deputy Assistant Secretary of the Navy for Planning, Programming, and Resources provided comments that specifically addressed the GOLD System's hazardous material module duplicating the HSMS capacity of tracking hazardous material use, the GOLD System's hazardous material module impeding Navy efforts to standardize hazardous substance management, the GOLD System's hazardous material module as a streamlining effort, and the cost of the GOLD System's hazardous material module.

HSMS Duplication. The Deputy stated that the GOLD System's hazardous material module is complementary to the HSMS, not redundant. While the HSMS tracks hazardous material use by process, the GOLD System's hazardous material module tracks hazardous material usage against each maintenance action on the T-45 aircraft.

Hazardous Substance Management Standardization. The Deputy stated that no documentation exists to substantiate that the GOLD HAZMAT Module impeded the Navy's efforts to standardize hazardous substance management and that the maintenance contractor created a substitute stand-alone system. He further stated that HSMS and the GOLD System's hazardous material module are complementary, not redundant systems, and that the use of GOLD System's hazardous material module and previous databases has been either in place or working, or both, well before DoD ever mandated HSMS. Regarding the statement that the GOLD System's hazardous material module would be costly to maintain, he pointed out that the GOLD System's hazardous material module maintenance is less than 2 percent of the annual cost of GOLD System maintenance.

Hazardous Material Module Streamlining. The Deputy stated that the Naval Air Station Kingsville installation and implementation of HSMS will not impact the T-45TS maintenance contractor workload. Naval Air Station Kingsville personnel will only enter data into HSMS and T-45TS maintenance personnel will only enter data into the GOLD System's hazardous material module.

Hazardous Material Module Cost. The Deputy stated that the contractual records indicate that development costs for the GOLD System's hazardous material module are approximately \$20,000.

Audit Response. The GOLD System's hazardous material module impedes the standardization of hazardous material management because an interface problem exists between the GOLD System's hazardous material module and HSMS. As long as the maintenance contractor uses the GOLD System to support the maintenance and material management efforts of the T-45TS aircraft and obtains hazardous material directly from the Hazardous Material Minimization Center at the Naval Air Station Kingsville, the GOLD System's hazardous material module and HSMS software do not need to interface. If the contractor obtains hazardous materials from sources other than the Hazardous Material Minimization Center, the contractor will need to have HSMS software to control, track, and reduce the variety and use of hazardous material. We included the updated development cost of the GOLD System's hazardous material module in the report.

Management Comments on Finding B. and Audit Response

Management Comments. The Deputy Assistant Secretary of the Navy for Planning, Programming, and Resources did not concur with the overall finding and specifically with the discussion on the T-45TS life-cycle cost estimate.

Overall Finding. The Deputy stated that the T-45TS Program Office has provided a Total Ownership Cost Plan (the Plan) (in FY 1995 constant year dollars through FY 2035), which includes a traditional life-cycle cost estimate. The Plan accounts for demilitarization, disposal, and environmental costs by:

- providing contractor logistics support costs, including environmental costs such as strip and paint requirements;
- providing environmental compliance costs allocated to the T-45TS by the Naval Air Station Kingsville and the Naval Air Station Meridian; and
- calculating the demilitarization and disposal costs for attrition aircraft.

Updates to the initial Plan are in process and analysts have improved the estimating approach for all aspects of demilitarization and disposal costs, including the end of the aircraft's useful life.

T-45TS Life-Cycle Cost Estimate. The Deputy stated that the total ownership cost estimate did account for demilitarization, disposal, and environmental costs. However, he stated that the estimate did not specifically identify environmental costs as it did demilitarization and disposal costs.

Audit Response. The updates to the initial Total Ownership Cost Plan and the analysts' improved estimating approach for all aspects of demilitarization, disposal, and environmental costs, including the end of the aircraft's useful life, as well as implementation of the recommendation, should correct the condition discussed in the finding.

Appendix D. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
Deputy Under Secretary of Defense (Environmental Security)
Deputy Under Secretary of Defense (Logistics)
Director, Defense Logistics Studies Information Exchange
Under Secretary of Defense (Comptroller)
Deputy Chief Financial Officer
Deputy Comptroller (Program/Budget)

Department of the Army

Commander, Army Materiel Command
Assistant Secretary of the Army (Installations and Environment)
Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Assistant Secretary of the Navy (Research, Development, and Acquisition)
Commander, Naval Air Systems Command
Program Executive Officer for Air, Anti-Submarine Warfare, and Special Missions
Programs
Program Manager for the T-45
Chief, Naval Education and Training
Deputy Chief of Naval Operations (Logistics)
Director, Environmental Protection, Safety, and Occupational Health Division
Auditor General, Department of the Navy
Deputy Chief of Staff (Installations and Logistics), Headquarters, Marine Corps
Director, Naval Center for Cost Analysis
Commanding Officer, Naval Air Station Kingsville

Department of the Air Force

Commander, Air Force Materiel Command
Assistant Secretary of the Air Force (Financial Management and Comptroller)
Auditor General, Department of the Air Force
Chairman, Joint Acquisition Sustainment Pollution Prevention Activity

Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Logistics Agency
Commander, Defense Contract Management Command
Commander, Defense Contract Management Command East
Commander, Defense Contract Management Command West

Other Defense Organizations (cont'd)

Director, National Security Agency
Inspector General, National Security Agency
Inspector General, Defense Intelligence Agency

Non-Defense Federal Organizations and Individuals

Office of Management and Budget
General Accounting Office
National Security and International Affairs Division
Technical Information Center

Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Reform
House Subcommittee on Government Management, Information, and Technology,
Committee on Government Reform
House Subcommittee on National Security, Veterans Affairs, and International
Relations, Committee on Government Reform

Department of the Navy Comments



DEPARTMENT OF THE NAVY
OFFICE OF THE ASSISTANT SECRETARY
RESEARCH, DEVELOPMENT AND ACQUISITION
1000 NAVY PENTAGON
WASHINGTON DC 20350-1000

JUL 08 1999

MEMORANDUM FOR DEPARTMENT OF DEFENSE ASSISTANT INSPECTOR
GENERAL FOR AUDITING

SUBJECT: DEPARTMENT OF DEFENSE INSPECTOR GENERAL (DODIG) DRAFT
AUDIT REPORT ON HAZARDOUS MATERIAL MANAGEMENT FOR THE T-45
UNDERGRADUATE JET PILOT TRAINING SYSTEM (Project No. 8AE-
5037.02) - INFORMATION MEMORANDUM

REFERENCE: (a) DODIG memo of 30 April 1999

ENCLOSURE: (1) Department of the Navy Comments

In response to reference (a), our comments are provided at
Enclosure (1).

A handwritten signature in black ink, appearing to read "William J. Schaefer".
WILLIAM J. SCHAEFER
Deputy Assistant Secretary
of the Navy
Planning, Programming, and
Resources

Copy to:
ASN(FM&C) (FMO-31)
NAVAIR (AIR-09G4)
CNET (00GR)
OPNAV (N45)

DEPARTMENT OF THE NAVY RESPONSE TO
DODIG DRAFT AUDIT REPORT
"HAZARDOUS MATERIAL MANAGEMENT FOR THE
T-45 UNDERGRADUATE JET PILOT TRAINING SYSTEM"
(PROJECT NO 8AE-5037 02)

Finding A: The Naval Air Station Kingsville did not establish a Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) with Hazardous Substance Management System (HSMS) software that controls, tracks, and reduces the variety and use of hazardous material. Also, the Naval Air Station Kingsville did not have a hazardous material minimization center (the Center) that provides centralized storage, distribution, and reutilization of hazardous material and the disposal of hazardous material waste. Further, the T-45TS Program Office contracted for a hazardous material module to its Government-on-Line Data (GOLD) system that duplicated the HSMS capacity of tracking hazardous material use. The Naval Air Station Kingsville did not establish a CHRIMP with HSMS software and a fully operational Center because supply personnel believed that their existing implementation of CHRIMP met Navy requirements. The Program Office advised that it contracted for the GOLD system's hazardous material module because it considered the module to be a streamlining effort to make material tracking an integral part of the T-45TS maintenance process. As a result, by not establishing a CHRIMP with HSMS software and a fully operational Center, the Naval Air Station Kingsville did not achieve life-cycle hazardous material control, management, and pollution prevention for the T-45TS in conformance with Navy policy. Further, the T-45TS Program Office efforts to establish the GOLD System's hazardous material module impeded Navy efforts to standardize hazardous substance management and created a stand-alone system that would be costly to maintain.

DON Comments: Do not concur with the finding. The T-45 program has long been committed to the reduction/elimination of HAZMAT. Consistent with this requirement was a need to document the quantity of hazardous materials used during each individual maintenance action. Initially, the process used to conduct this tracking was a simple database developed in MS Access. The GOLD HAZMAT Module portion was developed to take the place of the MS Access tracking system. GOLD HAZMAT module does not, nor was ever, intended to provide a cradle to grave approach for managing HAZMAT items, which HSMS does for the Naval Air Station. It does however, provide a concise measure of HAZMAT used against a given Work Unit Coded item, providing critical information to identify HAZMAT reduction opportunities. As an additional benefit, the GOLD HAZMAT Module also provides an on-line MSDS for the artisan and a listing by workcenter of what HAZMAT items are in use at any one time.

The GOLD HAZMAT Module is a central component in the T45TS program's commitment to aggressively reduce and eliminate hazardous material use. It does not, nor was it ever intended to serve as a substitute or replacement for CHRIMP/HSMS systems. The GOLD HAZMAT Module serves as a valuable complement to CHRIMP/HSMS systems, not as a redundant system.

DON General Comments: Maintenance contractors that are NAS Kingsville tenants support the T45TS Program. As tenants of the Naval Air Station, the T45TS program has no direct

influence on command policy, but rather is responsible for compliance with the policies established by the Commanding Officer, NAS Kingsville. T45TS program considers itself in full compliance with existing station directives on the use of hazardous materials.

Additionally, the NAVSUP Hazardous Minimization Program Office (HMPO) EAST in Norfolk, VA conducted a review of the NAS Kingsville CHRIMP program in June 1999. Feedback from HMPO East verifies that NAS Kingsville has implemented CHRIMP. Full implementation of HSMS at NAS Kingsville is scheduled FY00.

Specific Comments

Page 1, Executive Summary: Introduction and Page 1, Background: "The T-45TS supports a pilot training rate of 348 pilots per year. In FY 1995, the McDonnell Douglas Corporation began full-rate production of the T-45TS. The T-45TS Program Office plans to acquire a total of 187 aircraft by FY 2005 and estimated life-cycle costs for the T-45TS Program to total about \$6 billion."

DON Comments: Due to changes on the program, the T45TS Total Ownership Cost (TOC) estimate uses the following data:

1. A PTR (on the average) of 361, not 348;
2. 234 total aircraft inventory, not 187; and
3. TOC projection out through FY 2035 of \$15.4B (FY95\$), not \$6B.

The DoD IG used the FY97 Director of Operational Test & Evaluation's Annual Report as the source data for this information, which could account for the dated statistics.

Page 2, Paragraph 4, Noteworthy Environment Efforts: "In 1999, the Navy awarded to the Program Office the Chief of Naval Operations and the Secretary of the Navy 1998 Environmental Security Awards for Pollution Prevention for efforts of the Materials and Process Action Team to procure a nonpolluting paint removal system called FLASHJET™ as an alternative to chemicals and plastic blast media."

DON Additional Information: In addition, the T45TS Program also was awarded Honorable Mention at DoD level for the 1998 Environmental Security Awards for Pollution Prevention – Weapon Systems Acquisition Team. As well, the T45TS Program received Honorable Mention for the 1999 White House Closing the Circle Awards for Sowing the Seeds for Change category.

Page 4, Paragraph 1, Hazardous Material Reutilization and Inventory Management: Further, the T-45TS Program Office contracted for a hazardous material module to its Government-on-Line Data (GOLD) system that duplicated the HSMS capacity of tracking hazardous material use.

DON Specific Comments: The GOLD HAZMAT Module is complimentary to HSMS, not redundant. While HSMS tracks HAZMAT use by process (i.e., paint with a brush or paint with an air spray gun), the GOLD HAZMAT Module tracks HAZMAT usage against each maintenance action at the Work Unit Code level on the T-45 aircraft.

Pages i and 1, Revised

Page 2, Revised

Page 4, Revised

Page 4,
Revised

Page 4, Paragraph 1, Hazardous Material Reutilization and Inventory Management:

"Further, the T-45TS Program Office efforts to establish the GOLD System's hazardous material module impeded Navy efforts to standardize hazardous substance management and created a stand-alone system that would be costly to maintain

DON Specific Comments: There is no substantiation that the GOLD HAZMAT Module impeded the Navy's efforts to standardize hazardous substance management, nor did it create a substitute stand-alone system. As stated previously, HSMS and the GOLD HAZMAT Module are complementary, not redundant systems. NAVSUP's plan for installation/implementation of HSMS at NAS Kingsville has been scheduled for FY00. The use of GOLD HAZMAT Module and previous databases has been in place/work well before DoD ever mandated HSMS. Regarding the findings that the GOLD HAZMAT Module would be costly to maintain, GOLD HAZMAT Module maintenance is less than 2% of the annual cost of GOLD maintenance

Page 9, Paragraph 3, Government-on-Line-Data System: "As a streamlining effort GOLD System The module .. environmental reporting. The T-45TS Program Office believed that the maintenance contractor would not have to make dual entries. implements HSMS However, according to personnel dual hazardous material entries may be necessary HSMS. The Hazardous Minimization Program Office East personnel stated that they would review the hazardous material interface and dual reporting during their assist team visit in June 1999 "

DON Specific Comments: As stated previously, HSMS and the GOLD HAZMAT Module are complementary, not redundant

NAS Kingsville's installing/implementing HSMS will have no impact on T-45TS maintenance contractor workload. Only NAS Kingsville station personnel will enter data into HSMS, not the T-45TS maintenance contractor. The T-45TS maintenance personnel will only enter data into the GOLD HAZMAT Module, not HSMS. There will be no dual entry or duplication of data. The maintenance contractor will go to NAS HAZMIN Center for HAZMAT distribution; the station personnel will enter into HSMS. The maintenance personnel will enter into the GOLD HAZMAT Module usage by product and maintenance action, and the empty containers will be returned to NAS HAZMIN Center. Data from the GOLD HAZMAT Module will be used to facilitate the T45TS program's commitment to hazardous material reduction/elimination. The station will use HSMS for its CHRIMP program. The T-45TS maintenance contractor will make entries only into the GOLD HAZMAT Module, which will facilitate the T-45TS program's goal to reduce use of HAZMAT

Page 10, Paragraph 1, Government-on-Line-Data System: "The Program Office estimated that the contract cost for the GOLD System's hazardous material module was about \$30,000

DON Specific Comments: Contractual records indicate that development costs for the GOLD HAZMAT Module are approximately \$20,000.

Recommendation A.1: We recommend that the commander of Naval Education and training command, program, budget, and allocate funds to establish and assist the Naval supply Systems command in implementing the consolidated Hazardous Material Reutilization and Inventory Management Program with the Hazardous Substance Management System at Naval Air station Kingsville, Texas

DON Response: Do Not Concur In the above recommendation, substitute "Chief" for "Commander" and delete "Command". The recommended action is deemed unnecessary for the reasons discussed below

NAS Kingsville implemented CHRIMP in June 1993. This was shortly after the program first came on line for Navy shore commands. In September 1997, NAS Kingsville relocated the HAZMIN Center to a new building constructed specifically for that purpose. Accordingly, all elements of the HMC&M Program are already fully implemented at NAS Kingsville. Initial tracking of hazardous materials was accomplished using the Hazardous Inventory control System (HICS). During FY 1998, HICS was approved for replacement by the HSMS. NAVSUP is mission funded to provide necessary hardware, software and training support for HAZMIN Centers to bring HSMS on line. NAVSUP has been in the process of installing HSMS since it was adopted. However, NAS Kingsville was programmed to receive the system toward the end of the installation process. NAVSUP representatives will be in Kingsville during August 1999 to determine the resources necessary to implement HSMS. CNET has budgeted funds for FY 2000 to support any equipment upgrades necessary to facilitate the integration of HSMS at Kingsville

Recommendation A.2: We recommend that the Commander, Naval Air Station Kingsville, Texas, establish the Consolidated Hazardous Material Reutilization and Inventory Management Program with the Hazardous Substance Management System, including a fully operational centralized hazardous material minimization center, to track and manage hazardous materials at Naval Air Station Kingsville, in accordance with Office of the Chief of Naval Operations Instruction 5090.1B, "environmental and Natural Resource Program Manual" Change 1, February 2, 1998

DON Response: Do Not Concur In the above recommendation, substitute "Commanding Officer" for "Commander". The action suggested by the recommendation is deemed unnecessary. The DON response to A 1 is germane. For the purpose of verifying the veracity of CNET comments, request that the DODIG Audit Team revisit NAS Kingsville with CNET Program Managers. The appropriate NAS Kingsville Managers welcome the opportunity to visually demonstrate that the command is in compliance with OPNAVINST 5090 1B

Recommendations A.3: We recommend that the Director, Environmental Protection, Safety, and Occupational Health Division, Office of the Deputy Chief of Naval Operations (Logistics), determine whether the T-45 Undergraduate Jet Pilot Training System Program Office needs the Government-on-Line-Data System's hazardous material module after Naval Air Station Kingsville implements the Consolidated Hazardous Material Reutilization and Inventory Management Program with the Hazardous Substance Management System.

DON Comments: Do not concur. As explained earlier, HSMS and the GOLD HAZMAT Module are used for complementary, not redundant purposes. Additionally, there is no requirement for dual entry by the maintenance contractor or NAS Kingsville station personnel

Recommendations A.4: We recommend that the Program Manager for the T-45 require the contractor to use the Hazardous Substance Management System in its FY 2000 and future contractor logistics support contracts

DON Comments: Do not concur. HSMS is used by NAS Station personnel, not the T-45 contractor. There is no requirement to be added to current or future Contractor Logistics Support contracts

Finding B: The T-45TS Program Office did not include in the program's life-cycle cost estimate and demilitarization and disposal plan the cost for demilitarization, disposal, and environmental cleanup of the T-45TS at the end of its useful life. The Program Office excluded demilitarization, disposal, and cleanup costs because of the following:

- historical cost data for demilitarization and disposal of weapon systems were not readily available and
- the Navy did not develop the technical expertise or models to estimate life-cycle costs for demilitarization, disposal, and environmental cleanup

As a result of the incomplete total life cycle cost estimate, the Program Office could not accurately report in Navy financial statements the liability for demilitarization, disposal, and environmental cleanup costs for the T-45TS

DON Comments: Do not concur with the finding. The program office (PMA-273) has provided a TOC Plan (in FY95 constant year dollars through FY2035), which includes a traditional life cycle cost estimate. It accounts for demilitarization, disposal, and environmental (DD&E) costs by: 1) providing Contractor Logistics Support costs (in the Operating & Support (O&S) Costs of the TOC), to include environmental costs such as strip and paint requirements; 2) providing Environmental Compliance costs allocated to the T-45TS by NAS Kingsville and NAS Meridian (*NAS Kingsville and Meridian each budgets \$400K for Environmental Compliance in its Base Operating Support costs*); and 3) calculating the demilitarization and disposal (D&D) costs for attrition aircraft to be \$0.89M (FY95\$). Updates to the initial plan are in process and analysts have improved the estimating approach for all aspects of D&D costs, including the end of the aircraft's useful life (\$4.2M (FY95\$) included in the updated TOC estimate).

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Page 14, Paragraph 3, T-45TS Life-Cycle Cost Estimate: "Naval Air Systems Command cost analysts (the Analysts) provided a life-cycle cost estimate for the T-45TS that did not specifically identify demilitarization, disposal, and environmental cleanup costs. Further, in support of the award of the T-45TS FY 2000 contractor logistics support contract, the Analysts prepared an operations and support cost-estimate that also did not include environmental costs associated with the operation and maintenance of the T-45TS. In addition, the Analysts stated that the life cycle cost estimate did not include demilitarization, disposal, and environmental cleanup costs because of the following: historical cost data for demilitarization and disposal of weapon systems were not readily available, and the Navy did not develop the technical expertise or models to estimate life-cycle costs for demilitarization, disposal, and environmental cleanup.

DON Specific Comments: Do not concur. The TOC estimate did include costs for DD&E. Environmental costs were not specifically identified as environmental costs, as were disposal and demilitarization costs. DD&E costs were accounted for by providing Contractor Logistics Support costs (in the Operating & Support (O&S) Costs of the TOC), including environmental costs such as strip and paint requirements; providing Environmental Compliance costs allocated to the T-45TS by NAS Kingsville and NAS Meridian (*NAS Kingsville and Meridian each budgets \$400K for Environmental Compliance in its Base Operating Support costs*); and calculating D&D costs for attrition aircraft to be \$0.89M (FY95\$). Since then analysts have obtained further data and improved the estimating approach for all aspects of D&D costs.

including the end of the aircraft's useful life, and \$4.2M (FY95\$) is in the updated TOC estimate.

Recommendation B: We recommend that the Program Manager for the T-45 develop and include environmental cleanup costs along with demilitarization and disposal costs of the T-45 Undergraduate Jet Pilot Training System in annual total ownership cost updates

DON Comments: Concur Naval Air Systems Command analysts have updated the estimate and it will be included in all future estimates

Audit Team Members

The Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing, DoD, prepared this report.

Thomas F. Gimble
Patricia A. Brannin
John E. Meling
Jack D. Snider
Susan J. Lippolis
Sean A. Davis
Jenshel D. Marshall